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OPTIONAL FORM NO. 10
5010-104
Approved For Release 2000/08/07 : CIA-RDP79-01578A000100110010-7
UNITED STATES GOVERNMENT

Memorandum


TO : Chairman, Equipment Board, OC

OSS M67-618
DATE: 6 July 1967

FROM : Chief, Operations Support Staff, OC

SUBJECT: RS-101 Power and Audio Accessory Requirements

On 7 April, the Operations Support and Engineering Staffs were directed by the Equipment Board to select and procure various accessories for use with the RS-101. The Operations Support Staff has already outlined requirements for several accessories that will be peculiar to the RS-101 radio set. Power and audio accessories, however, will be useful for a variety of radio sets either planned or in existence. Because the cost of these accessories is high and because these requirements relate to other programs, the requirement letters are presented for Equipment Board consideration at this time. Copies of the requirement letters which we propose forwarding to the Engineering Staff are attached.

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Attachments:

- 1 - Requirement Letter (OSS M67-550)
- 1 - Requirement Letter (OSS M67-619)

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UNITED STATES GOVERNMENT

Memorandum

TO : Chief, Engineering Staff, OC

FROM : Chief, Operations Support Staff, OC

SUBJECT: RS-101 Power Accessory Requirements

OSS-M67-550
DATE: 20 June 1967

1. A number of accessories are needed to power the RS-101 radio set. Generally, RS-101 applications will fall into two basic categories for which different power sources are indicated. The categories are manual CW or voice and automatic morse operation. Each category may be further broken down into manpack and semi-stationary or mobile applications. The capacity of the RS-101 internal nickel cadmium battery limits its usefulness to power only the receiver during manual and voice service and additionally powering the transmitter and keyer during the short transmissions with automatic service. It is apparent then that a higher capacity power source is needed to power the transmitter in manual morse and voice service and that battery chargers are needed for the internal battery. Additionally, a DC/DC converter is needed so the radio can be used on 24-28 volt vehicles, and an expendable battery supply, similar to the mercury battery used in the DELCO 5300, is desired to increase system utility. Finally, the RP-101 which you are developing, should complete the power accessory complement for the initial buy of RS-101 equipment.

2. Since the RS-101 is primarily a tactical radio set, a hand generator appears to be the obvious power source for manual CW or voice manpack operations. Our choice considers relative sizes, weights, endurance, and resupply factors of fuel cell chargers with batteries, hand generator chargers with batteries, and the on-line hand generator. Please proceed then with development of a durable, 12-volt, 65-watt hand generator for on-line operation of the RS-101. This generator can also be used for future equipments requiring an on-line hand generator power source. The complete hand generator should not exceed the volume of the basic RS-101 and, if possible, should not weigh over 12 pounds. You may wish to utilize the HG-100 with appropriate size reduction or to increase capacity of the HG-49P. In either case we prefer a ruggedized version of the mounting assembly developed at the R&D Laboratory as used on the HG-49P. A rugged interconnecting cable assembly is needed to couple the generator output to the radio set. The cable should preferably have parallel conductors to provide redundant circuit paths.

3. We would like several chargers for the internal rechargeable battery. Since existing units nearly meet the requirement you may wish to alter them rather than start new development projects.

- a. A hand generator charger is appropriate for manpack medium speed applications. The HG/A-48 may be altered to serve this purpose. The electrical modifications appear minor, however

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a much more durable cable is desired. The generator case corners should have more radius to reduce pack wear and the modified unit should be painted to match the RS-101.

- b. Moving units can use a small AC charger to carry and use when they are located at places where power is available. Semi-stationary units may also use a small AC charger where power is only available part time. We feel that the EMBC-112 is a convenient size and request that it be made compatible with the RS-101 battery. Here again, the case corners should be rounded and the connectors should be more rugged. A moderate size increase can be tolerated to accommodate the improvements. The operating charger should not affect operation of a nearby RS-101 receiver employing a separate battery and changes are needed to safeguard the user from the electrical shock hazard existing in the EMBC-112.

4. After experience with the DELCO 5300 and its two different battery supplies we feel that an expendable mercury battery pack is in order for the RS-101. Please arrange for development of a mercury pack that will fit in the RS-101 battery compartment. The connections on this pack should be made so that charging voltage will not appear across the mercury battery. The packs should be delivered in sealed [REDACTED] and the date of manufacture should be clearly visible through the bag. Each bag should also contain two adhesive labels which can be marked with the date of installation and be affixed to the battery and equipment case.

5. Development of the RP-101 should be actively pursued so that production units are available coincident with availability of the RS-101.

6. Vehicular applications will undoubtedly include operation in U.S. military vehicles having a 24-28 volt DC power supply. In such cases we will need a converter to allow operation of our 12 volt radio system and its accessories. It would be convenient to have the converter capable of bulk-head or platform mounting or attachment to the equipment vehicular mount. The usual mounting hardware and cabling should be supplied with the converter. Converter development may follow development of the other power accessories if necessary.

7. For your planning purposes we have estimated the power accessory ratios given below.

- 34 On-line hand generators for every 50 RS-101's
- 16 Battery charge hand generators for every 50 RS-101's
- 28 AC battery chargers for every 50 RS-101's
- 2 Nickel Cadmium batteries for every RS-101
- 34 DC/DC converters for every 50 RS-101's
- 44 RP-101's for every 50 RS-101's

Expendable battery production must be related to consumption rates.

8. Looking beyond accessory requirements for initial production model RS-101 equipment we hope for eventual development of an integrated fuel cell battery power supply and a reliable high capacity rechargeable

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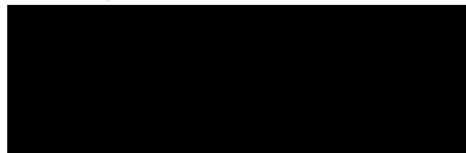
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battery supply.

9. Questions concerning operational features or application of these accessories should be directed to Tom Shedd at extension 5596. We are prepared to join actively in the development of these accessories.



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Memorandum

TO : Chief, Engineering Staff, OC

OSS M67-619
DATE: 6 July 1967

FROM : Chief, Operations Support Staff, OC

SUBJECT: RS-101 Audio Accessories

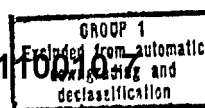
1. A variety of audio accessories are desired for use with the RS-101 radio set. This variety results from the different applications which we envision for the RS-101. Generally, RS-101 applications will fall into the two basic categories of manpack and semi-stationary or mobile service. For manpack service a headset is always needed and in some cases a handset may also be used. For semi-stationary applications a headset or loudspeaker is needed and in some cases a hand microphone or handset will also be used. For vehicular or maritime applications a headset or loudspeaker is needed and in some cases a boom microphone, hand microphone, or handset may be used. The overall requirement is for a headset, a boom microphone for use with the headset, a handset, a hand microphone, and a loudspeaker.

2. Accessories used with the RS-101 must be durable and the rugged, blastproof, and waterproof military standard accessories fit the requirement. Unfortunately, many of the military accessories are large and heavy which makes them unattractive for manpack service. Smaller and lighter accessories are being developed and we have examined prototypes which appear satisfactory. Since the new units are not yet in volume production, the price differential between the current standard units and the new units may be significant and we may have to tolerate the size and weight disadvantage of the older accessories. With this factor in mind, we request that the following military units be considered for procurement:

- a. Headset H-251/U or Headset H-140-A/U
- b. Standard USAF noise cancelling boom microphone for use with headset selected above
- c. Hand microphone M-125 or microphone M-81
- d. Handset H-250/U or Handset H-189

3. There is no standard military loudspeaker which carries the features we would like in our loudspeaker. (A suitable military unit was developed for use with the AN/PRC-62 but the basic radio never went to production). The desired loudspeaker should consist of a small box containing the transducer, an OFF/ON switch for the transducer, and a U-183 receptacle for standard accessories. A rugged interconnecting cable should be supplied which connects the loudspeaker unit to the basic equipment. The loudspeaker box should be made to attach on the universal mounting kit previously requested and also be provided with a clamp for attachment to objects up to two inches thick.

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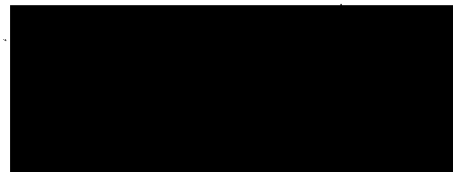
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4. For your planning purposes, we estimate the audio accessory ratios given below:

70 headsets for every 50 RS-101's
20 hand microphones for every 50 RS-101's
40 handsets for every 50 RS-101's
20 boom microphones for every 50 RS-101's
25 loudspeakers for every 50 RS-101's

Questions concerning operational features or application of these accessories may be directed to Tom Shedd at extension 5596.



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